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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,597	09/09/2003	Arnold P. Kehrli	30020-189001	1923

69713 7590 06/10/2008  
OCCHIUTI ROHLICEK & TSAO, LLP  
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CAMBRIDGE, MA 02138

EXAMINER
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PARRIES, DRU M

ART UNIT	PAPER NUMBER
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2836

NOTIFICATION DATE	DELIVERY MODE
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06/10/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

INFO@ORTPATENT.COM

<b>Office Action Summary</b>	<b>Application No.</b> 10/658,597	<b>Applicant(s)</b> KEHRLI, ARNOLD P.	
	<b>Examiner</b> DRU M. PARRIES	<b>Art Unit</b> 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-11 and 13-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 13-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed March 11, 2008 have been fully considered but they are not persuasive. Regarding the added limitation to claims 1 and 10, that limitation can be interpreted very broadly. "Normal operating conditions" could be interpreted to mean anything, including "when current is flowing in the system," and that is how the Examiner will interpret the limitation. Therefore, Morita still reads on those limitations.

2. Also, contrary to the Applicant's assertion, Couture's power flow controller does read on the claim limitations. Couture teaches a system of transmission lines where a modulated impedance could be applied to any and all of the transmission lines of a system to balance out the load. Therefore, Couture DOES teach "a power flow controller...for selectively regulating during normal operating conditions of the power transmission system by a variable amount at least one of the magnitude and direction of the power flowing through the second power transmission line."

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 5, 7, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al. (2003/0183410) and Morita (6,344,956). Sinha teaches first and second transmission lines in parallel, and the second line including a superconductor ([0134]; Fig. 29).

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It is also inherent that the second impedance characteristic is less than the first, based on the superconductor (also see [0144]). He also teaches the superconductor being a cold-dielectric high temperature superconductor (Fig. 5). He also teaches a refrigeration system for cooling the high temperature superconductor ([0137]). Sinha fails to teach the use of a power flow controller, which is a reactor. Morita teaches a power flow controller, which selectively controls the magnitude of the power flowing through a superconductor during normal operating conditions to provide flow optimization, where the controller could be a reactor. Morita also teaches the power flow controller being configured to restrict a total amount of current allowed to pass through the transmission line while maintaining a superconductive state. Morita also teaches the power flow controller, which can increase its resistance level when the current through a superconductor exceeds a critical level. This increase in resistance limits the current (and in turn, the power) by an incremental and variable amount depending upon the amount of current that was flowing initially and the increase in resistance level (Col. 1, lines 35-59; Col. 8, lines 30-36). It would have been obvious to one of ordinary skill in the art at the time of the invention to add a reactor onto the superconductor transmission line of Sinha's invention to regulate the power flow through the line and also reacts quickly to short-circuit accidents.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al. (2003/0183410) and Morita (6,344,956) as applied to claims 1 and 3 above, and further in view of Talisa et al. (5,878,334). Sinha teaches a superconductor being an oxide (Abstract), but fails to specify exactly what type of oxide superconductor. Talisa teaches the use of a high temperature superconductor made of Tl-Ba-Ca-Cu-O. It would have been obvious to one of ordinary skill in the art at the time of the invention to use Talisa's superconductor in Sinha's

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invention since it is known in the art and the exact type of superconductor that Sinha describes isn't explicitly known.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al. (2003/0183410) and Morita (6,344,956) as applied to claim 1 above, and further in view of Shimomura et al. (JP 11122793A). Sinha and Morita teach a multi-line power transmission system. Neither reference explicitly teaches what the first transmission line is made of. Shimomura teaches a power transmission line which is a cross-linked polyethylene power transmission line (USE). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement this transmission line into Sinha's invention since it is known in the art as a working power transmission line that carries high voltages and Sinha doesn't teach a specific type in his invention.

7. Claims 8-9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al. (2003/0183410) and Morita (6,344,956) as applied to claim 1 above, and further in view of Hingorani (5,420,495). Sinha and Morita teach a multi-line power transmission system. Neither reference explicitly teaches a bi-directional power flow controller which is also a phase angle regulator. Hingorani teaches a bi-directional power flow controller which also regulates and controls the phase angle (Col. 2, lines 45-47, 58-60). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement this controller into Sinha's invention so that the operator can have more control over the flow of power in the system.

8. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al. (2003/0183410) and Morita (6,344,956) as applied to claim 1 above, and further in view of Parton (4,045,823). Sinha and Morita teach a multi-line power transmission system. Morita fails

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to explicitly teach his power flow controller comprising a plurality of reactors. Parton teaches a power flow controller comprising a plurality of reactors configured to limit the amount of current flowing through a superconductor. He also teaches the power flow controller configured such that a desired impedance characteristic can be achieved by activating/deactivating one or more of the reactors. (Abstract; Col. 1, lines 11-37) It would have been obvious to one of ordinary skill in the art at the time of the invention to implement Parton's power flow controller into the combined Sinha/Morita invention since his controller performs the same function as desired and is more explicit in the performance of his current limiting device.

9. Claims 10, 11, 13-14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al. (2003/0183410), Morita (6,344,956) and Hingorani (5,420,495). Sinha teaches first and second transmission lines in parallel, and the second line including a superconductor ([0134]; Fig. 29). It is also inherent that the second impedance characteristic is less than the first, based on the superconductor (also see [0144]). He also teaches the superconductor being a cold-dielectric high temperature superconductor (Fig. 5). He also teaches a refrigeration system for cooling the high temperature superconductor to keep it in a specified operating range ([0137]). Sinha fails to teach determining and regulating the level and amount of power flow through the second transmission line. Morita teaches a current limiting element (power flow controller) coupled to a superconductor, which selectively regulates the power flowing through the superconductor during normal operating conditions to provide flow optimization. Morita also teaches the current limiting element, which can increase its resistance level when the current through a superconductor exceeds a critical level. This increase in resistance limits the current (and in turn, the power) by an incremental and variable amount depending upon the amount of

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current that was flowing initially and the increase in resistance level (Col. 1, lines 35-59; Col. 8, lines 30-36). Hingorani teaches a bi-directional power flow controller which determines and regulates the power flowing in the transmission line (Col. 2, lines 45-47, 51-55). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement Morita's power flow controller with the bi-directional characteristic of Hingorani's controller on the superconducting line of Sinha's invention so that the operator can have more control over the flow of power in the system.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al. (2003/0183410), Morita (6,344,956) and Hingorani (5,420,495) as applied to claim 10 above, and further in view of Shimomura et al. (JP 11122793A). Sinha, Morita, and Hingorani teach a multi-line power transmission system. Neither reference explicitly teaches what the first transmission line is made of. Shimomura teaches a power transmission line which is a cross-linked polyethylene power transmission line (USE). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement this transmission line into Sinha's invention since it is known in the art as a working power transmission line that carries high voltages and Sinha doesn't teach a specific type in his invention.

11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sinha et al. (2003/0183410) and Morita (6,344,956) as applied to claim 1 above, and further in view of Couture (2002/0005668). Sinha and Morita teach a multi-line power transmission system as described above. Neither reference explicitly teaches the power flow controller providing a desired impedance characteristic to provide load balancing between the two conductors. Couture teaches a power flow controller that modifies the impedance on various transmission lines in a

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network to provide load balancing between transmission lines (Abstract; [0004]). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement the ability of Couture's power flow controller to modify the impedance on various lines, into the Sinha/Morita combination's power flow controller to provide a safer and more stable network.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dru M. Parries whose telephone number is (571) 272-8542. The examiner can normally be reached on Monday -Thursday from 9:00am to 6:00pm. The examiner can also be reached on alternate Fridays.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry, can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael J Sherry/

Supervisory Patent Examiner, Art Unit 2836

DMP

5-29-2008